Dawn of a new asset class

In order to understand the potential of a particular intellectual property, both owners and investors have to have a clear picture of its worth

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What future revenue streams may be expected from sales of the Canine Scuba Diving Apparatus (US Patent No 6,206,000) – a technological breakthrough that enables pet owners to take Rex along on underwater excursions?

What are the chances for commercial success for the Toilet Tank Aquarium (US Patent No 5,983,411), an innovation designed to satisfy both hygiene concerns and the interests of the tropical fish fancier?

Or consider the value of US Patent No 2,981,877, filed hurriedly in response to competitive pressures, based on old notebook drawings that had lain neglected and describing a device for which there was no known practical means of production.

This last patent was one of four basic discoveries for the integrated circuit, which has become the heart of countless products from digital cameras to automobile engine controls. But on its face, the initial discovery of the integrated circuit could conceivably be lost among the proposals for dog diving equipment and the millions of other patents on file representing widely variable degrees of commercial viability.

While the comparison of the toilet tank aquarium to the integrated circuit is an extreme example, the reality is that it has historically been difficult not only to assign, but also to substantiate, variable valuation designations for one patent over another. Today, however, there is great demand for an accurate, standardised method to value intangible assets such as patents, especially as the balance of tangible versus intangible assets in countries such as the US has shifted enormously.

Companies seeking to assess accurately and better leverage patent value are increasingly engaging new methodologies for a host of purposes, among them: determining a patent's relative value; as part of a management buyout process; and assessing a particular technology's importance to an entire industry (see case histories).

The ability to estimate the value of patents with accuracy is becoming more vital for several reasons:

- Intellectual property and other soft assets, such as marketing expertise, are growing in importance in the more developed countries of the world as greater portions of their hard assets, such as manufacturing plants, shift to China and other lower production cost areas. Developed countries will experience a transition close to that experienced during the industrial revolution. The transition will be characterised by intangible assets being of substantially more value than tangible assets. As companies see the value of their stock and their creditworthiness linked more proportionately to soft assets, rapid, accurate valuation becomes more important.
- Intellectual property is already forming a new asset class – securities backed by patents – that will be packaged into a pool for investors, as has been done previously for mortgages, commercial loans and credit card debt.
- Patent activity is growing faster than any other economic indicator with applications in the US increasing at an annual rate of about 15% over the past five years. The sheer volume of patent applications poses

a challenge to reliable valuation.
- US financial regulators are demanding that companies more accurately value their intellectual property through regulations such as Sarbanes-Oxley. This has led to the need for increased justification and much more stringent scrutiny of the value attributed to a company's assets.

Older valuation methods lack sophistication

Companies have historically pursued several different methods for assessing the value of patents, all of which have inherent challenges.

The most basic and primitive approach – analogous to the caveman's club – is simply to read all patents. As they are legal documents, one should theoretically be able to discover all relevant information by perusing patents line by line. In practical terms, this is impossible from the standpoints of both time and money. For example, there are more than 10,000 patents covering medical stents alone. The sheer volume of potentially relevant patents renders the omnibus reading approach a physical impossibility.

A step up in sophistication is to employ subject matter experts – a worldwide group of lawyers, scientists and intellectual property consultants – who will make their knowledge available for a fee. Specifically, these experts claim to have comprehensive knowledge of the field and can, therefore, identify key patents and focus on them for efficient analysis. Unfortunately, due to the complexity of patents, even genuine experts are likely to reach different conclusions after reviewing the same document. This approach is essentially a subjective exercise, limiting its value for business and financial people who are seeking to place accurate value on a patent.

A third traditional approach is citation analysis, which is based on the idea that the value of one patent can be assessed by compiling a list of what other patents it cites. Some consulting organisations produce charts and graphs of patent citations, with accompanying explanations of their significance. Citation analysis has usefulness in depicting relationships among patents. However, it does not include the reasons why one patent cites another and makes no assessment of the strength or rationale for the citation. As a result, each citation achieves equal weight, diminishing the value of citation analysis as a valuation tool.

Compounding the problem is the quality of the patent data coming out of patent offices. Once the government issues a patent, it makes no attempt to track changes in ownership or assignees, and does not follow up to resolve inconsistencies in inventor names or other data. As a result, it is impossible, merely using USPTO records, for example, to compile a list of all the patents owned by a company such as General Electric.

Weaknesses of traditional valuation methods

In summary, none of these approaches is satisfactory for assessing patent value. They are weak because:
- All are very labour intensive and time consuming.
- They are unable to cope with increasing complexity and volume of patent data; as a result, they cannot provide the depth and speed of analysis that modern needs require.
- They lack objectivity, making them dependent on the quality of the analyst, subject to challenge from other experts and potentially inconsistent from one analysis to the next.

Case history: evaluating a management buyout

A leading private equity investment firm recently retained ipIQ as part of its due diligence in deciding on its participation with management in the buyout of a developer and marketer of advanced dental equipment.

ipIQ conducted a deep patent evaluation employing several proprietary methods over extensive databases to value the present and future worth of the buyout candidate's patent portfolio. Among other findings, the analysis found that the target company differentiated itself from competitors through strong capabilities in computer assisted-design and manufacture of dental equipment, and dominated the intellectual property market for dental imaging solutions. The evaluation revealed the company held nearly 200 US and European patents, including eight that were considered leading-edge and one that qualified as seminal – opening a new technological field – and that it has substantial amounts of patentable research underway. The research also identified and valued the portfolio holding of competitors, some not previously known to the client. This effort provided the client with significant understanding of the buyout candidate's business, providing an edge over other potential investment firms.

In this way the significant role of patents in the company's overall valuation was demonstrated and, based in part on ipIQ's findings and recommendations, the client proceeded with the buyout.

Case history: determining a single patent's relative value

A leading chemical company engaged ipIQ to determine whether one of its patents represented a seminal discovery for improving methods for conducting online searching. The objective was to determine whether other closely similar patents existed, assess their relative value and compile a list of potential licensees for the patented technology.

The analysis began by compiling a set of relevant intellectual property. This task involved two steps:
- The use of three-tier technology to identify related technologies through empirical weighting among patent citations.
- The research identified 10 distinct technology characteristics and conducted a full-text search on a patent database to identify and compare additional relevant companies.

These two, separate approaches established the scope of the technology field. Following this analysis, in-house experts identified the most relevant art. The resulting set was compared to the client's patent using indicators to determine the overall quality of the client's technology and its position in the state of the art.

The analysis revealed that the client had a valuable technological niche and demonstrated high quality in the field of speech and translation services. The findings also identified a group of the best licensee candidates for the client's technology.

Case history: evaluating technology's importance to an industry

A leading investment bank recently retained iplQ to assess the dependence of patent strength on financial performance in the medical technology industry. The goal was to understand the relative positions of industry participants better from an intellectual property perspective, pick the companies most likely to succeed and provide insight into the linkage between intellectual property and business strategies.

For this effort, research focused on the leading companies in the medical technology and device industry and completed detailed analyses on them. These analyses included:

- Assessment of each company's patent portfolio, separating them into discrete technological categories.
- Determination of the relative strength of each company's patent portfolio, utilising a set of proprietary indicators.
- Evaluation of business strategies and company performance, based on variables such as historical research and development spending, acquisitions and market share. The results were correlated with intellectual property activity.
- Establishing how a company's strategic and financial performance related to the strength and quality of its patent portfolio.

Two major themes emerged from this research.

First, intellectual property is critically important to the success of medical technology and device companies. The analysis revealed how new and innovative products, based on intellectual property, have driven dramatic shifts in market share and growth in overall market size. One company studied introduced a revolutionary device to alleviate symptoms of heart disease and achieved multi-million dollar sales in the space of two years. However, this company failed to react to products and technology introduced by competitors and subsequently experienced a precipitous decline in sales, and eventually was left behind as improving technology dominated the market.

Second, the research established the role played by intellectual property in overall business strategy. Critical to the success of some companies was their ability to acquire and successfully integrate technological advances, while others achieved desirable performance through a strategy of focused internal research and development spending. Moreover, companies pursuing a technology-acquisition strategy achieved success by tightly focusing on specific areas of intellectual property that led to products capable of generating future revenue streams.

- They lack comprehensiveness because they depend on manual rather than automated tools and search technologies that are able to look at all relevant material.
- They fail to address the complexities associated with the international expansion of intellectual property, which makes data and appropriate expertise less accessible.
- They do not present information in clear and appropriate formats. In fact, most result in raw patent office data that does not include analysis, or the historical background necessary for trend analysis, audit trails and other desirable features.
- Analysis based on filed patent information does not address business needs, including financial performance metrics that may be incorporated into a business plan or economic model.

An improved approach to patent and other intellectual property valuation is needed. This approach unifies global patent data with automated valuation methods to achieve critical advantages for valuation, meeting current and future needs. Let's look at some attributes of this improved approach.

A new approach

In contrast to manual, subjective analytic approaches – with their inherent weaknesses – the business world needs an accurate, reliable, consistent and timely method for the valuation of intellectual property, including patents. Such an approach would utilise a comprehensive database of patents, searchable by type and content. It would provide objective judgements and employ mathematically based tools that can assess not only the current financial value of these properties but also their potential for future revenues.

Perhaps the most important feature of this approach is the presence of a set of metrics that would correlate patent content with desirable attributes, such as the number of successful products resulting from a patent, identification of strategic merger and acquisition opportunities, and the correlation between patents owned by a publicly traded company with the value of its stock.

To maximise usefulness to the investment community, a patent valuation system needs accurate, timely and tailored databases, coupled with analytic tools, such as filters, and features such as text analysis and text mining. Finally, patent valuation – in addition to measures that accurately assess current valuation – should also utilise a set of indicators that can predict the likelihood and degree of future success for a piece of intellectual property.

More than six million US patents exist, including those for pet scuba equipment and other ideas that have limited commercial appeal. In fact, of all the patents filed, probably only 2% or less have the extreme value of the integrated circuit and only about 10% have any significant commercial value at all.

Keys to accurate, timely valuation

To sift through these huge volumes of patents, analysis of value needs to focus on such characteristics as:

- Seminality – those early patents that open a whole new set of opportunities in technology and products, such as the transistor, cholesterol-reducing drugs and plastics. The analyst who can identify seminal patents at the earliest stages would, of course, have a huge advantage over investors who participate after

commercial success is achieved.

- Patent Portfolio Quality – which places a relative grade on the patent set and also identifies companies with leading research and development capabilities, for example. These qualities are important components for assessing merger and acquisition candidates where patent-based assets are fundamental to the value equation.
- Patent to Product Intensity – how frequently a company's patent results in a useful product, a relationship that will help determine the investment community's valuation of the company's stock.
- Risk Assessment – the ability to handicap patents against the risks of being supplanted, invalidated, restricted or otherwise subjected to limitations on their value.
- Science Linkage and Effectiveness – how well a company's research and development activities are attuned to current advances in the world scientific community.
- Technology Cycle Time – a measure of how fast a company translates an idea into a marketable product.

The need for such measurement tools, combined with a comprehensive, easily searchable database, will continue to increase for a number of reasons. These include the greater emphasis placed on soft versus hard assets, as well as regulatory requirements to value intellectual property more fully and accurately.

Foundation for patent securitisation

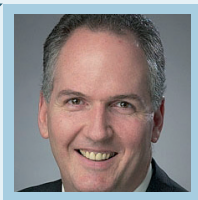
Beyond the impact on individual corporations, accurate patent valuation is essential to support the growing interest in the securitisation of patents. Although some transactions of this nature have taken place, the trend will accelerate as reliable valuation tools become more widely used. Ultimately, patents will be securitised on a routine basis.

In addition, companies will experience changes in the value of their stock and judgements of their creditworthiness linked to their invention performance and ability to derive value from the fruits of their research and development. As a result, companies will need a reliable, objective and consistent set of valuation metrics to manage intellectual property assets.

Final thoughts

Methods for intellectual property valuation will inevitably continue to evolve. The market will demand sophisticated valuation capabilities as the Western economy continues to rely more and more on intangibles as a source of value. The demand, combined with regulatory requirements to value intellectual property more fully and accurately, will create a pull effect for objective, consistent valuation approaches.

Those companies that engage proven, mathematically based valuation analysis tools hinged on comprehensive, continually updated datasets will be best positioned to realise the full value of their intellectual property.



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